


Middle Years
Programme

Session 4 – Written curriculum: Inquiry




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Session objectives

- develop an understanding of how concepts and context are synthesized into a statement of inquiry
- develop an understanding of student and teacher questions to guide inquiry (factual, conceptual, debatable)
- explore how the inquiry cycle can frame meaningful, relevant, and engaging classroom learning



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Establishing the purpose of the unit


Key concept

Related concept

Global context

Statement of inquiry

Inquiry questions



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Inquiry based learning

"If you envisioned images of children actively posing questions, seeking answers to questions that they care about, demonstrating a strong interest in outcomes, and discussing their theories and ideas with others, you've shared in a glimpse of what makes educators so excited about the possibilities of inquiry-based learning. At its best, inquiry-based learning makes excellent educational sense."



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Extracts: Grotzer, The Keys to Inquiry in
<http://blogs.education.com/blogs/edupolicy/2012/03/01/inquiry-learning/>
Inquiry Learning-Project Zero, Harvard Graduate
School of Education

Sensory Inquiry

In your table group complete the "Looks like, feels like, sounds like" routine below:

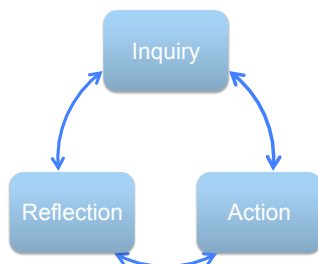
Inquiry in the disciplines		
Looks like...	Feels like...	Sounds like...
Collaboration	Supportive learning environment	Students asking meaningful questions



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The Inquiry cycle



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Recap...

1. We have identified key and related concepts for table group unit
2. We have ensured that we have a meaningful global context and its exploration



Moving forward we will....

3. Synthesize and merge the concepts into a conceptual understanding.
4. We will contextualize the conceptual understanding into a statement of inquiry.
5. We will unpack the Statement of inquiry through inquiry questions.



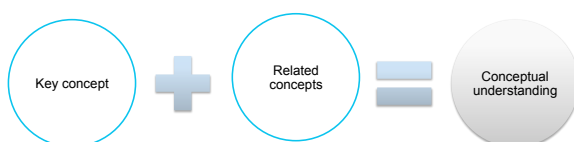
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The statement of inquiry...

- is a sentence which synthesizes the key concept, one or more related concepts, and the global context
- facilitates synergistic thinking
- may provide for a universal understanding
- focuses the unit
- is directly tied to the summative assessment.

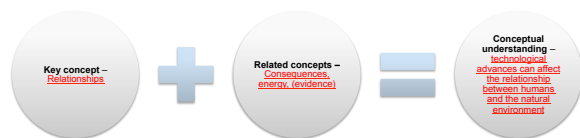
Let's get started...



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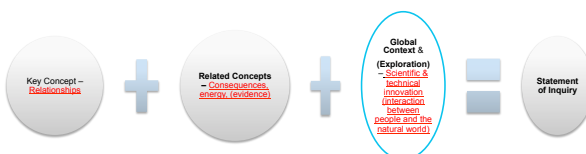
Developing a conceptual understanding



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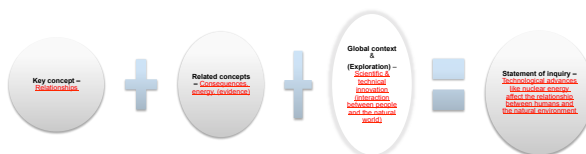
Contextualizing the conceptual understanding



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The statement of inquiry

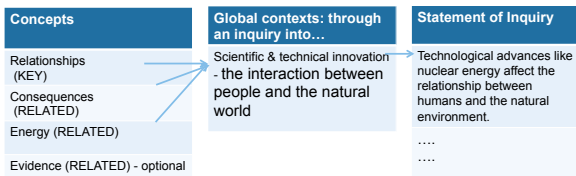


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Putting it all together

The example shows how a science teacher has used a global context and concepts for a unit on "Nuclear energy" to develop a statement of inquiry.



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Some helpful hints:

The statement of inquiry:

- should not use proper or personal nouns, or pronouns
- should have a present tense verb and contain at least two concepts and make a reference to a global context and its exploration
- is a transferable idea
- may need a qualifier (often, may, can) if it is not true in all situations.



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Establishing the purpose of the unit

Key concept	Related concept(s)	Global Context
Statement of inquiry		

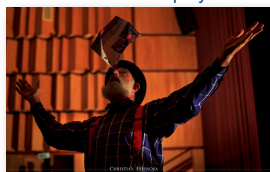


Your turn! Develop a statement of inquiry:

In your table groups:

1. Use your selected Key concept and Related concept(s)
2. Develop a conceptual understanding
3. Use your selected Global context exploration in order to contextualize a conceptual understanding

Voilà! You've just written a statement of inquiry!



To check if this statement is appropriate:
Ask : "So what? Why is this important to understand?"



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KEY and RELATED CONCEPTS



Gallery walk



- Post your table group's statement of inquiry on the wall.
- As a table group, move from statement to statement and provide critical feedback using sticky notes.
- Return to your table group to incorporate feedback as necessary.



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Inquiry questions

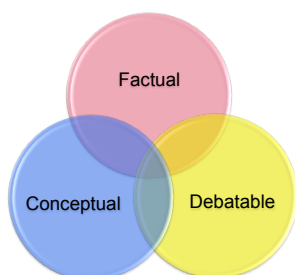
- **Teachers** develop inquiry questions in order to explore the statement of inquiry, and to ensure adequate conceptual depth.
- **Students** may develop their own questions throughout the unit in order to satisfy curiosity and deepen understanding.



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Types of inquiry questions



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Criteria for developing inquiry questions

Factual	Can use starters "What..." Open questions which you might Google but find many variations in your answers. <i>E.g.</i> What technologies are available for producing electrical energy at an industrial scale?
Conceptual	Can use starters "How..." or "Why..." Open ended questions which unpack a concept from the statement of inquiry <i>E.g.</i> How might the development of nuclear power for electricity production affect the environment?
Debatable	Can use starters "Do..." or "Is..." Debatable questions provoke discussion. <i>E.g.</i> Is carbon trading fair to poor, developing and industrialized nations?



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Using lines of inquiry ...

Topic: Acids and bases

Key Concept: Systems

Related Concepts: Transformation, balance

Global Context: Scientific and technical innovation

Factual

Line of Inquiry: Students will investigate the presence of acids or bases as active ingredients in a variety of household products.

- Which acids or bases do we use in our homes?

Conceptual

Line of Inquiry: Students will inquire into typical reactions of acids and bases and their mechanisms in order to better understand how they can be used.

- How do chemical reactions produce new substances?
- How can a balance be achieved in chemical reactions?

Debatable/ provocative

Line of Inquiry: Students will explore the uses and dangers of acids and bases in household chemicals.

- Under what conditions should powerful chemicals be sold for use in the home?

Try it for yourself ?

Back to your table group unit!

Formulate 3 inquiry questions

- 1 factual
- 1 conceptual
- 1 debatable



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Reflection

After today's sessions, reflect
upon something that you
feel...

Confident about?
Comfortable with?
Concerned about?



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How to cope with the challenges

1. Have a strategic plan
2. Refer to the guides
3. Use the OCC for advice
4. Develop a common faculty understanding
5. Ongoing professional development
6. Have a go – don't be afraid of getting it wrong
7. Ask your coordinator for support

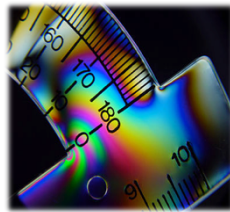


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Standards and practices

- In your workbook are the four C standards (2014).
- For each standard write down one or two practices that have been explored in the workshop.



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Final reflections

- What last questions do we have?
- Are there any challenges we still need to deal with?



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